

U.S. Patent Application Serial No. 10/782,821  
 Amendment filed March 4, 2009  
 Reply to OA dated November 7, 2008

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claim 1-10 (Cancel)

Claim 11 (Previously Presented): A computer-readable storage medium having stored thereon a computer program for use in optical corrections to obtain a more accurate optical image for simulating an amount of occurrence of local flare which occurs in an exposure process in manufacturing a semiconductor executable to perform the steps of:

dividing a layout of a photo mask into a plurality of areas;

calculating an average value of light intensity in each of the areas;

simulating and estimating an amount of occurrence of local flare in each of the areas on the basis of each of the average values, for use in optical corrections to obtain a more accurate optical image, and

correcting dimensions of the photo mask based on the estimated amount of occurrence of local flare, wherein

when a circular-shaped light source is used, the average value of light intensity

$\bar{I} = \sum_{k=1}^N F_k S_k S_k^*$ , and N is 1 or more natural number,  $F_k$  is a weighting factor of diffracted light,  $S_k$

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is the amplitude of the diffracted light, and  $F_k = A_k / (\sigma^2 \pi)$  where  $A_k$  is the area shared between

a circle C having a radius NA, the numerical aperture of a lens, and a circle  $S_k$  having a radius of

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